

**Notice of Allowability**

Application No.

10/829,176

Examiner

Zachary C. Tucker

Applicant(s)

LANG ET AL.

Art Unit

1624

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 25 May 2006.
2. ☒ The allowed claim(s) is/are 1 and 3-5.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance              |
|   | 9. <input type="checkbox"/> Other _____.   |

***Response to Amendment***

As requested in the correspondence from applicants, filed 25 May 2006 (hereinafter "present amendment"), which is in reply to the Office action mailed 13 April 2006 (hereinafter "previous Office action"), claim 1 has been amended and claims 2, 6 and 7 have been cancelled. Page 4, line 12, in the specification has been amended as requested also, introducing the heading "Brief Description of the Drawings."

***Status of Claim Rejections - 35 USC § 112***

In the previous Office action, claims 3, 6 and 7 were rejected under the second paragraph of 35 U.S.C. 112, for indefiniteness.

It was alleged in the Office action that claim 3, although the claim specified "a ratio," did not actually set forth a proper ratio between two values. Only the amount of runback is set out, but what that runback is in relation to is not specified. It is clear upon review of the specification, and in consideration of the argument proffered by applicants' counsel, that the runback ratio is relative to the amount of new material coming into the column in the inflow section and relative to the amount of material being removed from the column in the offtake section thereof. Although it is, in the opinion of the examiner, always more desirable to set forth exactly what both elements of a ratio are, just as is the case with the example a two-ingredient recipe pointed up at page 4 of the remarks accompanying the present amendment, it is also at the same time applicants' prerogative to specify a ratio in any way he sees fit. On balance, applicants' prerogative in this respect should prevail, so rejection of claim 3 on grounds that an improper ratio is set forth therein is hereby withdrawn. One of ordinary skill in the art would with some study be able to interpret the significance of the ratio specified in instant claim 3.

Applicants' comment pertaining to there being no necessity for units to be specified in a ratio, contrary to what was alleged in the Office action, is conceded to as well.

Claims 6 and 7 were held to be indefinite because a location of an intake or offtake vessel as being "between" the location of certain theoretical plates along the length of the column is not a real location, as the plates being referred to are theoretical; they are not real. A distillation column's number of theoretical plates is an imaginary construct based on measurement of the column's efficiency at separating mixtures of substances, thus the location of those theoretical plates is imaginary also. The number of theoretical plates in a distillation column depends on many variables not specified in claim 6 or 7, so the location of those plates cannot be determined from the information in the claim.

***Status of Claim Rejections - 35 USC § 103***

In the previous Office action, claims 1, 4 and 5 were rejected under 35 U.S.C. 103(a) as being obvious over US 3,297,701 (Brader and Rowton) in view of Schultz et al, *CEP Magazine 'Online!'* vol. 98(5), pages 64-71(2002), Lestak and Collins, *Chemical Engineering*, vol. 7, pages 72-76 (July 1997) and Kaibel, G. *Chemical Engineering and Technology*, vol. 10, pages 92-98 (1987).

In view of the present amendment, which incorporates the limitation of claim 2 into claim 1, the rejection is hereby withdrawn. None of the cited references suggests the particular kind of dividing wall now required by instant claim 1. All of the diagrammatic representations of dividing wall columns show the dividing wall extending only partway down the column.

***Drawing***  
***~and~***  
***Specification***

In the previous Office action, the single figure was objected to for lack of a notation "Figure 1." The objection is hereby withdrawn in view of the amended drawing.

The specification was objected to for lack of a section headed "Brief Description of the Drawing." That objection is hereby withdrawn in view of the present amendment to the specification.

***Allowable Subject Matter***

Claims 1 and 3-5 are allowed.

The following is an examiner's statement of reasons for allowance:

All of the previously set forth rejections and objections have been overcome by applicants' amendment and reply.

Subject matter of the allowed claims is not disclosed or suggested in the closest prior art, which is cited in the previous Office action.

Also of particular interest with respect to the subject matter of the allowed claims is:

Lestak and Smith, "The Control of Dividing Wall Column" *Chemical Engineering Research and Design*, vol. 71(A3), page 307 (1993).

Lestak and Smith discusses the advantages of dividing wall distillation columns. No mention of TEDA purification is made in the article.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

All Post-Allowance Correspondence concerning this application must be mailed to:

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Mail Stop Issue Fee  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Or you can fax them to the Office of Patent Publications at 703-872-9306, in order to expedite the handling of such correspondence as amendments under 37 CFR 1.312; information disclosure statements, and formal drawings. Sending Post-Allowance papers to Technology Center 1600 will only cause delays in matching papers with the case.

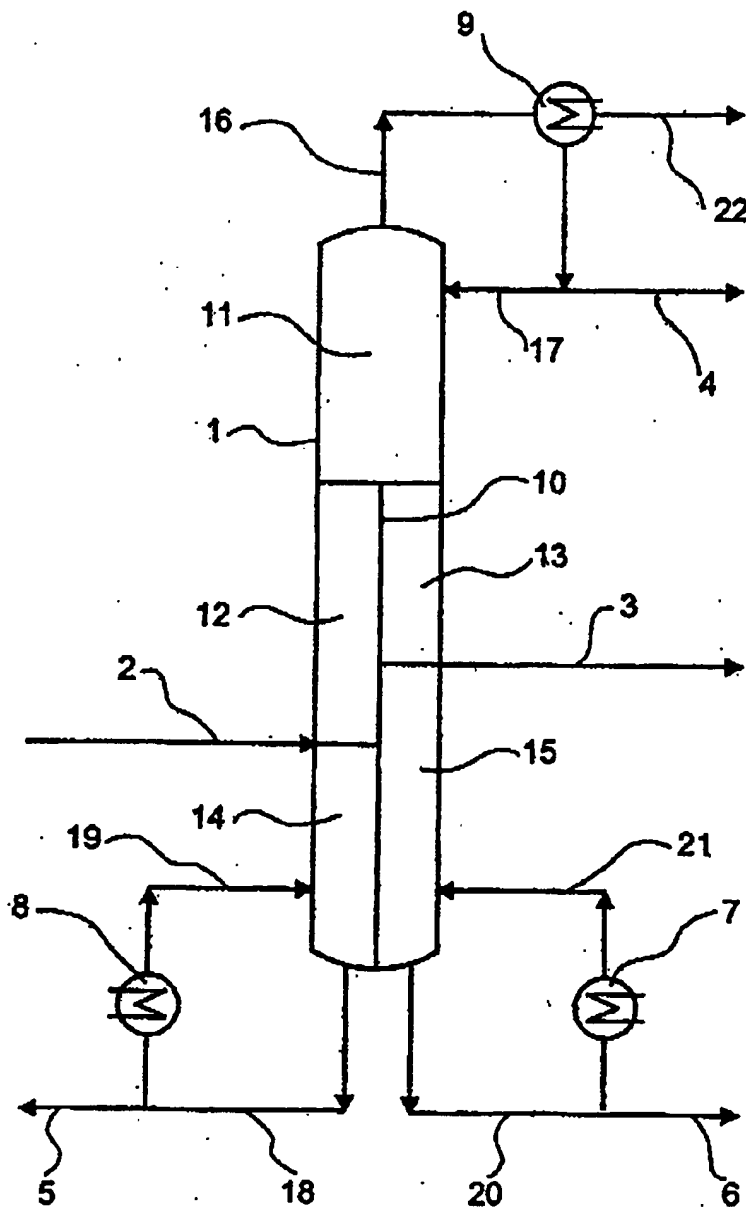
For information concerning status of correspondence sent after receipt of the Notice of Allowance, please contact the Correspondence Branch at (703) 305-8027. The Notice of Allowance also has an insert containing contact information on other items, including Issue Fees, receipt of formal drawings and the status of the application.

zt

A handwritten signature in black ink, appearing to be "zt" followed by a stylized name or initials.

# REPLACEMENT SHEET

FIGURE 1



BEST AVAILABLE COPY